Claims

1. A method of sending first and second signals to a plurality of user equipments, the method comprising the steps of:
   - providing of a dedicated channel for each one of the plurality of user equipments,
   - assigning a carrier frequency of a set of at least first and second carrier frequencies to each one of the dedicated channels,
   - providing of a code-multiplexed shared channel for the plurality of user equipments,
   - sending of one of the first signals to one of the plurality of user equipments on the dedicated channel of that user equipment on the assigned carrier frequency by applying a transmit diversity scheme,
   - sending of one of the second signals to one of the plurality of user equipments on the code-multiplexed shared channel on the carrier frequency being assigned to that user equipment by applying a multi-user diversity scheme.

2. The method of claim 1, the dedicated channels being DSCH type channels and the code-multiplexed shared channel being a HS-DSCH type channel of a HSDPA type transmission system.

3. The method of claim 1, whereby the sending of one of the first signals and the one of the second signals is performed by means of first and second multi-carrier power amplifiers being coupled to first and second antennas, the first and second multi-carrier amplifiers having at least the first and the second carrier frequencies.

4. The method of claim 1, the set of carrier frequencies having a number of n carrier frequencies.

5. A computer program product, in particular digital storage device, having program means for sending of first and second signals to a plurality of user equipments, the program means being adapted to perform the steps of:
   - providing of a dedicated channel for each one of the plurality of user equipments,
   - assigning a carrier frequency of a set of at least first and second carrier frequencies to each one of the dedicated channels,
   - providing of a code-multiplexed shared channel for the plurality of user equipments,
   - sending of one of the first signals to one of the plurality of user equipments on the dedicated channel of that user equipment on the assigned carrier frequency by applying a transmit diversity scheme,
   - sending of one of the second signals to one of the plurality of user equipments on the code-multiplexed shared channel on the carrier frequency being assigned to that user equipment by applying a multi-user diversity scheme.

6. A sender for sending of first and second signals to a plurality of user equipments, the sender comprising:
   - a first component for providing of a dedicated channel for each one of the plurality of user equipments,
   - a second component for assigning a carrier frequency of a set of at least first and second carrier frequencies to each one of the dedicated channels,
   - a third component for providing of a code-multiplexed shared channel for the plurality of user equipments,
   - a fourth component for sending of one of the first signals to one of the plurality of user equipments on the dedicated channel of that user equipment on the assigned carrier frequency by applying a transmit diversity scheme,

- a fifth component for sending of one of the second signals to one of the plurality of user equipments on the code-multiplexed shared channel on the carrier frequency being assigned to that user equipment by applying a multi-user diversity scheme.

7. The sender of claim 6 further comprising scheduler means for providing the multi-user diversity for the code-multiplexed shared channel for sending of one of the second signals only when a constructive channel fade is detected.

8. The sender of claim 6, the fourth component for sending of the one of the first signals and the fifth component for sending of the one of the second signals being provided by first and second multi-carrier amplifier components being coupled to first and second antenna components, the first and second multi-carrier amplifiers having at least the first and the second frequencies.

9. The sender of claim 6, the set of carrier frequencies having a number of n carrier frequencies.

10. A mobile cellular telecommunication system for sending of first and second signals to a plurality of user equipments within a cell, the telecommunication system comprising:
    - a first component for providing of a dedicated channel for each one of the plurality of user equipments,
    - a second component for assigning a carrier frequency of a set of at least first and second carrier frequencies to each one of the dedicated channels,
    - a third component for providing of a code-multiplexed shared channel for the plurality of user equipments,
    - a fourth component for sending of one of the first signals to one of the plurality of user equipments on the dedicated channel of that user

equipment on the assigned carrier frequency by applying a transmit diversity scheme,

- a fifth component for sending of one of the second signals to one of the plurality of user equipments on the code-multiplexed shared channel on the carrier frequency being assigned to that user equipment by applying a multi-user diversity scheme.